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CONFERENCE REPORT

2nd International Seminar in Social Life Cycle Assessment—recent developments in assessing the social impacts of product life cycles

Catherine Macombe · Pauline Feschet · Michel Garrabé · Denis Loeillet

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1 Introduction

The 2nd International Seminar in Social Life Cycle Assessment was held on 5 and 6 May 2010 in Montpellier (Agropolis International). It was the follow-up of the first seminar held in Lyngby at Denmark Technology University on 31 May 2010, initiated by Dr. Louise Camilla Dreyer. The second seminar was co-organised by four French institutions: CIRAD (http://www.cirad.fr/), Cemagref (http://www.cemagref.fr/), Université Montpellier 1 (http://www.univ-montp1.fr/) and ELSA (http://www.elsa-lca.org/) with the support of Agropolis International (http://www.agropolis.fr/), the Compagnie Fruitière (http://www.fruitiere.fr), the Plateforme ecotech-LR (http://www.ecotech-lr.org/) and Ecotool—FP7—Marie Curie Action—International Research Staff Exchange Scheme. The focus of the second seminar was on the scientific questions involved in developing methods to assess the social impacts caused by the functioning of product chains.

As during the first seminar, a streaming line was available. Seventy-five participants (mainly from France, Belgium, Italy) attended the second seminar, and up to 49 simultaneous internet connections were open. The remote participants were located in Europe (Germany, Italy, Belgium, NDL, Finland, Denmark, United Kingdom, France), America (Brazil, Canada, USA, Colombia), Asia (Nepal, Vietnam, Bangladesh, Thailand, India) and Africa (Sierra Leone, Gambia, Mauritania). Researchers, business specialists and consultants attended the seminar.

Four introductory speeches were given. Michel Garrabé, Professeur Agrégé des Universités (University of Montpellier 1–Laser), welcomed the participants. Dr. Robert Habib (CIRAD), head of the "Evergreen cultures" department, highlighted the involvement of CIRAD in the development of social LCA methods. Dr. Véronique Bellon-Maurel, Professeur at Sup'Agro Montpellier, presented ELSA, the pole for research, education and expertise in life cycle and sustainability assessment of Montpellier. A map of the world accompanied the welcome address to the remote participants. Finally, Dr. Catherine Macombe presented the overall programme in the order of the scientific issues addressed.

This conference report focuses on *the scientific questions that a practitioner would ask* himself/herself when performing a social life cycle assessment. Nearly all of the presentations covered a wide range of scientific issues, but for each topic, we only highlight some specific contributions. We apologize in advance to the seminar speakers if something important within their contribution has been overlooked.

Responsible editor: Thomas Swarr

C. Macombe (✉)
Cemagref, UMR ITAP,
361 rue Jean-François Breton,
34196 Montpellier, France
e-mail: catherine.macombe@cemagref.fr

P. Feschet · D. Loeillet
CIRAD,
Observatoire des marchés UPR 26,
34398 Montpellier Cedex 5, France

M. Garrabé
University Montpellier I,
Laser, EA 2039,
34960 Montpellier Cedex 2, France

2 What is social LCA?

In June 2009, the scientific field of social LCA issued a major contribution thanks to the publication of the "Guidelines for social life cycle assessment of products" by the working group UNEP/SETAC (Benoit and Mazijn 2009). On page 37, one may find the following definition of "social LCA": "A social and socio-economic Life Cycle Assessment (S-LCA) is a social impact (and potential impact) assessment *technique* that aims to assess the social and socio-economic *aspects of products* and their potential positive and negative impacts along their life cycle encompassing extraction and processing of raw materials; manufacturing; distribution; use; re-use; maintenance; recycling; and final disposal." During the seminar, a wider definition was suggested. First, social LCA is seen as a *method* (not a technique). This means that researchers question their own methodological choices (e.g. what kind of impacts? What perimeter? …). Second, social LCA may be used either to analyse the social *effects caused by the functioning* of chains of products compared with the situation where the chain does not exist (Aulisio) or to look at the *difference between the potential variants* (Lagarde) of one chain of products and even to look at the *differences between two scenarios* delivering the same service (Lähtinen). The scientific works presented belong to these different scopes.

3 How to determine the functional unit

A system delivers several services. In the life cycle spirit, we deal with each service one by one. Thus for each service, an LCA study defines one *functional unit*, which allows us to measure the quantity of the service delivered by the system. When functioning, the technical system produces many *effects* (positive and negative) upon human well-being, which are experienced as social impacts by stakeholders (for instance, workers, consumers, local society, etc.) involved in the life cycle. Assigning these effects to one functional unit highlights the balance between the advantages (the units of service provided) and often the drawbacks (for example, quantities of health destroyed). Mathé's talk paid special attention to this question. She presented 11 services provided by fish farming ponds and suggested at least one functional unit for each.

4 Who are the stakeholders?

The list of stakeholders may be adapted from the advice given in the "Guidelines for social life cycle assessment of products". This was done in the presentation by Brodeur, where for instance "Youth in integration or training program" stood for a specific category. However, the definition of stakeholders is not always obvious, as highlighted by Mathé when reviewing the relevant management science literature regarding stakeholders.

5 How to set the perimeter

Some researchers (Hunkeler 2006) work at the level of the process unit as in environmental life cycle assessment. However, thanks especially to Dreyer et al. (2006), there is a general agreement that social impacts depend on the behaviour of organisations. The product chain therefore often is described in terms of a chain of organisations. However, the organisations contributing to the product chain are linked indefinitely with suppliers and other partners. We therefore need cut-off criteria: what are the organisations whose behaviour and social effects will be taken into account and what are the organisations that will be left outside of the perimeter? Aulisio's work suggests that the organisations under scrutiny are exactly those whose unit processes would be involved if an environmental LCA was performed. Other possibilities remain open. Lagarde focused on the issue of perimeter definition. He proposed different management concepts which could be useful to design the study perimeter. Of course, the results are different according to the concept chosen. He highlighted the huge differences resulting from two assessments of the same social effect (rural jobs creation/loss) caused by the same scenario when the "strategic arena" was used instead of the usual "value chain".

6 What are the impact categories?

Without knowing what is worth assessing, social LCA studies risk being meaningless. The legitimacy and relevance of all studies depend on this choice. In the field of social life cycle assessment, there is a consensus that "human well-being" has an intrinsic value that is worth protecting (Jolliet et al. 2004; Weidema 2006). An initial list of impact categories was suggested in the UNEP/SETAC guidelines. Reitinger et al. (2011) suggested *impact categories from a normative scope* (logos), interpreting the capabilities theory through Finnis' philosophical work. In contrast, Lähtinen presented a process for defining the *impact categories from the stakeholder scope* (ethos).

7 What is the baseline?

If we consider an impact as being the result of a change, we need a *baseline*: impact is what happens to people when moving from the baseline to the studied state (Jorgensen et

al. 2010). The speakers of the seminar took different positions regarding the baseline. For Aulisio, the implicit baseline is "if the production chain did not exist". Brodeur's implicit baseline was the same as Aulisio's even though she could have compared the changes in social effects between the two scenarios that she presented. Indeed, each scenario may be the baseline for another, as in Lähtinen's presentation, who examined "the relative benefits of different bioenergy production chains from the perspective of life-cycle effects on social sustainability".

8 What is the nature of the expected outputs: impacts or something else?

From the perspective of the "impact assessment" scientific community, impacts are changes experienced by people or groups of people, such as a death in a community. Vanclay (2002) uses the example of construction activities. The functioning of a chain entails a change process (for instance, changes in ecological conditions, changes in the traffic in the neighbourhood) that delivers effects. These effects "fall down" onto a certain context. In context A, a high rate of vector diseases and traffic accidents may occur, while in context B, they do not. Indeed, impact depends on the context. According to Vanclay, one *impact* results from the interwoven concept "effect caused by change within a certain context".

In fact, social LCA studies *rarely provide outputs which are actually* "*social impacts*". In the seminar presentations, outputs were often an index or indicator (respect of indigenous rights, percent unemployment) more or less accounting for one state evoking social impacts. They stem from the corporate social responsibility corpus (Aulisio, Brodeur) or have been defined by stakeholders or experts (Mathé, Lähtinen). In one case, it was a so-called midpoint indicator (rural jobs creation/loss) towards the calculation of social impacts (Lagarde). Of all the presentations, only one (Feschet) presented the calculation of one social impact (change in potential life expectancy caused by economic activity change in one given context) according to the meaning given by Vanclay (2002). Moreover, a study might be based on state level indicators but fine tuned by the likelihood of infringement of workers' rights (Dreyer) or any other corporate social responsibility norm (Aulisio).

9 To conclude: different methodologies and uses

The variety of speeches highlight that different methodologies are taking shape in the field of social LCA at the same time. They have different outputs (Parent et al. 2010) and purposes. Jorgensen (2008), who already has published articles about the different methodologies available, presented three different uses of social LCA methods. The first category is "management SLCA", devoted to internal decision making within a value chain, and where the study aims to identify "social hot spots". The second category is called "consequential LCA". This type of study aims to assess the social impacts caused by choosing between decision alternatives. The last category is "educative SLCA", where the preference (a good SLCA score) of the decision maker is communicated to the market and becomes a competitive advantage. Leskinen discussed the question of integrating the results obtained from social LCA studies when the task is to compare different decision alternatives (each one being the life cycle of one substitutable product). He illustrated the choice of sustainability indicators from the case study of different bioenergy production chains in Finland.

After each talk, participants asked numerous questions, proving their deep interest in the topic. The proceedings (in English), including presentations and debates with the audience, will be available online by the end of June 2011 at the following address: http://social-lca-2011.cirad.fr/presentation.

We would like to thank all of the speakers who made this event possible, all of the participants in Montpellier and all of the remote participants (who watched the seminar despite time differences!). Their joint efforts and interest are the best encouragement for continuing on. We also are very grateful to our colleagues who contributed to the organisation of the seminar.

10 List of presentations

The name of the corresponding author, quoted in the text, is underlined.

Benoit-Norris C, Aulisio D, Norris G, Vickery Niederman G, Overraker S, Halisey-Kepka C, Social hotspot assessment of U.S. OJ: Overview and application of the SHDB

Dreyer LC A site specific approach to life cycle management of labour rights issues-using the social LCA toolbox

Feschet P, Rolo Saez A., Garrabé M, Loeillet D, Macombe C The "Preston" pathway linking economic activity and population health- The Cameroon case (banana industry)

Joergensen A, Dreyer L, Wangel A The effects of three different SLCA methods

Lagarde V, Macombe C, Taking into account the social effects of competition between products—example of Croatian pig industries

Lähtinen K, Leskinen P, Myllyviita T, Sironen S, Empirical Assessment of social sustainability in LCA:

case forest-based bioenergy production in Eastern Finland—BioSus

Laquerre M, Brodeur C, Revéret J-P, Fagnen S, Charron-Doucet J-F, The use of SLCA in the development of an extended producer responsibility policy: testing end of life scenarios for computer products in Québec

Leskinen P, Lähtinen K, Myllyviita T, analysing trade-offs between social and other dimensions of sustainability in LCA

Mathé S, Integrating participatory approaches in social LCA. What about functional units and impacts choices? Fish farming case

Reitinger C, Proposal for impact categories from a philosophical perspective

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Dreyer LC, Hauschild MZ, Schierbeck J (2006) A framework for social life cycle impact assessment. Int J Life Cycle Assess 11 (2):88–97

Hunkeler D (2006) Societal LCA methodology and case study. Int J Life Cycle Assess 11(6):371–382

Jolliet O et al (2004) The LCIA midpoint-damage framework of the UNEP/SETAC Life Cycle Initiative. Int J Life Cycle Assess 9 (6):394–404

Jorgensen A, Le Bocq A, Nazarkina L, Hauschild M (2008) Methodologies for social life cycle assessment. Int J Life Cycle Assess 13(2):96–103

Jorgensen A, Finkbeiner M, Jorgensen MS, Hauschild MZ (2010) Defining the baseline in social life cycle assessment. Int J Life Cycle Assess 15:376–384

Parent J, Cucuzzella C, Revéret J-P (2010) Impact assessment in SLCA: sorting the sLCIA methods according to their outcomes. Int J Life Cycle Assess 15:164–171

Reitinger C, Dumke M, Barosevcic M, Hillerbrand R (2011) A conceptual framework for impact assessment within SLCA. Int J Life Cycle Assess 16:380–388

Vanclay F (2002) Conceptualising social impacts. Environ Impact Asses 22:183–211

Weidema BP (2006) The integration of economic and social aspects in life cycle impact assessment. Int J Life Cycle Assess 1:89–96, Special issue